

NOTES ABOUT CLASSIFICATION OF THE SOUTH AMERICAN PTEROSTICHINI WITH A
KEY FOR DETERMINATION OF SUBTRIBES, GENERA AND SUBGENERA
(COLEOPTERA: CARABIDAE)

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Treated in the key, which is based on characters of adults, are 37 genera and 20 subgenera, arrayed in the following seven subtribes: *Morionina* (two genera); *Cratocerina* (one genus); *Microcephalina* (one genus); *Euchroina* (four genera); *Pterostichina* (24 genera, 18 subgenera); *Antarctiina* (four genera); and *Chaetogenyina* (one genus, two subgenera). Excluded from the *Pterostichina* and ranked as tribes are the *Catapiesini* and *Agonini*.

Tratados en la llave, el cual está basado en el original de los adultos, se encuentran 37 géneros y 20 sub-géneros, compilados en los siete siguientes sub-tribus: *Morionina* (dos géneros); *Cratocerina* (un género); *Microcephalina* (un género); *Euchroina* (cuatro géneros); *Pterostichina* (24 géneros, 18 sub-géneros); *Antarctiina* (cuatro géneros); y *Chaetogenyina* (un género, dos sub-géneros). Excluidos del *Pterostichini* y clasificados como tribus están los *Catapiesini* y *Agonini*.

INTRODUCTION

In 1976, the late Hans Reichardt (Museu de Zoologia da Universidade de São Paulo, Brazil) suggested to me a revision at the generic level of the South American *Pterostichini*, which he needed for his proposed synopsis of the genera of Neotropical Carabidae. This work was published posthumously, in an incomplete state (Reichardt, 1977). Preparation of my contribution was delayed for a variety of reasons, and I did not know about plans for completion of the general synopsis, following Dr. Reichardt's sudden and untimely death. The synopsis of the South American *Pterostichini* was published (Straneo, 1977) in Italian. Some months ago, George E. Ball invited me to write an English translation of my key for publication in *Quaestiones Entomologicae*, as a supplement to Reichardt's work.

The key I offer here is a translation with some modifications in style, as well. I have chosen to restrict the key and preliminary classification to taxa that are either confined to South America, or whose relatives are in South America. Thus, I do not deal with the northern elements of the Neotropical fauna, except for *Dyschromus*, which is the only genus of the *Euchroina* known from the northern hemisphere.

Only a few references are given here. References to descriptions of taxa can be obtained from Csiki (1929 and 1930), Blackwelder (1944 and 1957) and Reichardt (1977).

Previously (Straneo, 1977), I presented a list of the generic types of genera and subgenera of South American *Pterostichini*. Generic types of the following taxa were fixed in that paper: *Oribazus* Chaudoir; *Meropalpus* Tschitscherine; *Pseudabarys* Chaudoir; *Cynthidia* Chaudoir; *Ogmopleura* Tschitscherine; *Trirammatius* Chaudoir; *Feroniomorpha* Tschitscherine; *Parhypates* Motschulsky; *Agraphoderes* Bates; *Eutanyx* Tschitscherine; *Adrimus* Bates; *Feroniola* Tschitscherine; and *Antarctiola* Straneo. Also, the genus *Cephalostichus* was described as new.

NOTES ABOUT CLASSIFICATION

Two types of problems were encountered in study of classification of the South American *Pterostichini*. First is the matter of inclusion and exclusion of reasonably clearly defined groups of

genera. Second is the matter of ranking at the genus-group level.

I exclude from the Pterostichini the catapiesines, based on conclusions of Reichardt (1973), though the exact position of the group remains to be determined. Presently, it is ranked as a tribe, and placed near the truncatipennian assemblage of tribes. I also exclude the agonines, which I regard as a group related to, but at the same rank as, the pterostichines, even though various recent authors (for example Lindroth 1966: 441–442; Erwin *et al.*, 1977: 4.25–4.32; and Reichardt, 1977: 406) combine these two groups in a single tribe.

I include as a subtribe of the Pterostichini the morionines because, first, many character states of adults of these two groups are shared, and second, because morionines are traditionally regarded as a subgroup of the Pterostichini, and at present carabid specialists are not unanimous about placement and ranking of morionines. Thus, it seems best to follow tradition.

Ball (in Reichardt, 1977: 408) questioned inclusion of the chaetogenyines in the Pterostichini, but for the present, I prefer to maintain the *status quo*.

Inclusion of the Cratocerina, Microcephalina (= *Tichoniina* Reichardt 1977: 407), Euchroina, and Antarctiina in the Pterostichini has not been challenged by other recent authors.

Ranking at the level of genus-group (genera and subgenera) is a problem in the Pterostichini. Many of these taxa were ranked by previous authors as subgenera of *Pterostichus* (see, for example, Csiki, 1930 and Blackwelder, 1944: 35). Provisionally, at least, I think it best to exclude *Pterostichus* (*sensu lato*) from the southern hemisphere by removing from it all South American species. Future studies will have to be made to determine relationships of these taxa to their northern counterparts.

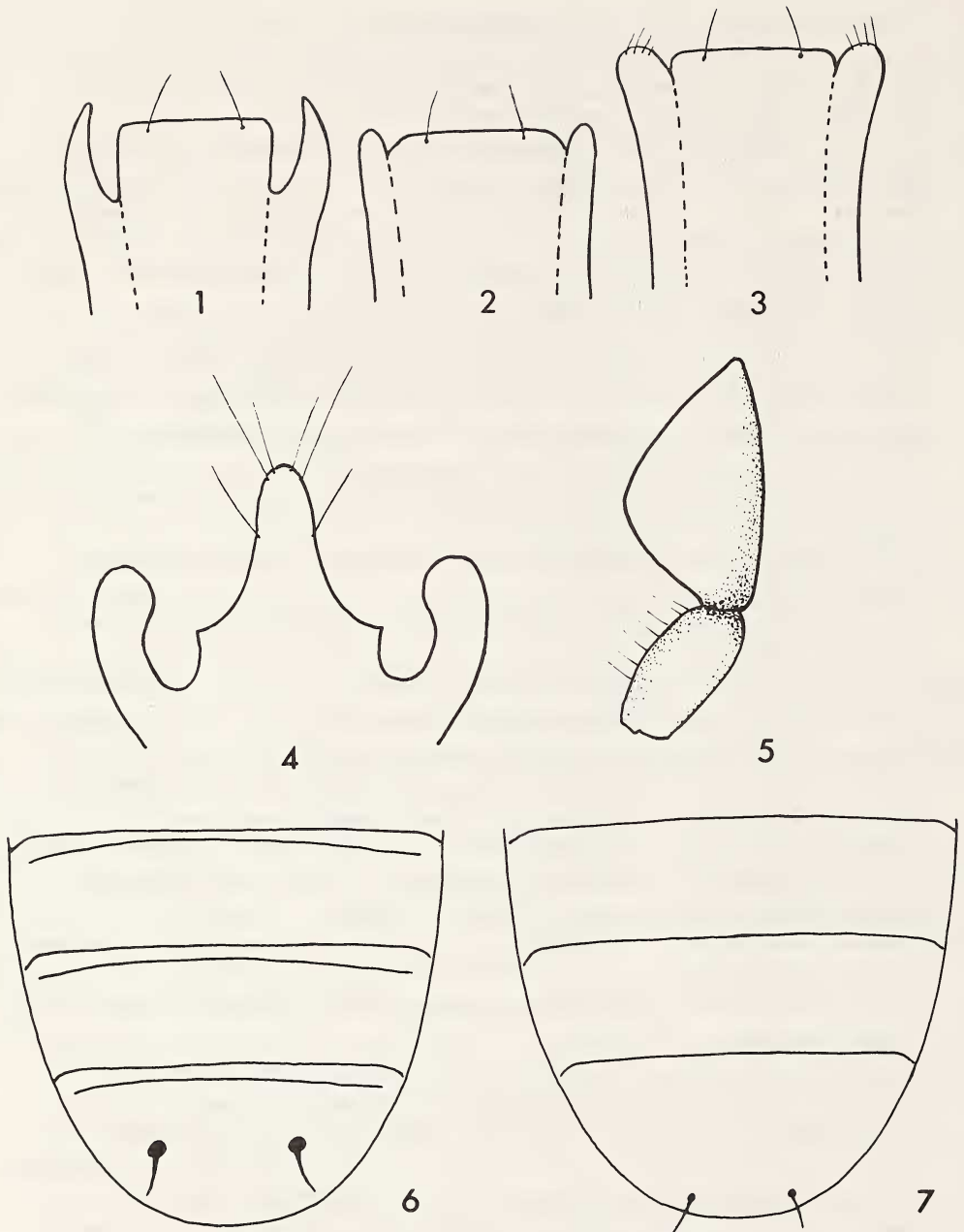
Limits of many of the South American genera are not well defined on the basis of adult character states, and I feel uncertain about the validity of some of these groups. Some groups ranked by me as subgenera will probably be treated as genera by other authors. As well, some of my genera will probably be combined by other authors. In brief, the present arrangement is unstable, and the South American pterostichine fauna is a rich field for systematic research.

In view of the circumstances outlined above, it may seem presumptuous to offer a key for determination of the higher taxa of South American Pterostichini. However, a provisional key seems better than nothing, and I hope that it will be useful both as a stepping stone to development of a better one, and above all, as a stimulus to investigate the interesting, highly diverse and divergent Neotropical pterostichine fauna.

Key to adults of subtribes and genera of the South American Pterostichini

- | | | |
|--------|---|-------------------------------|
| 1 (0) | Anterior tibia markedly dilated toward apex. Antennomeres 4–10 moniliform (i.e., each article thickened, and about as wide as long)..... | 2 |
| 1' | Anterior tibia average, not markedly dilated apically. Antennomeres 4–10 filiform, articles not thickened, and either distinctly longer than wide (most taxa) or as long as wide..... | 4 |
| 2 (1) | Anterior tibia with terminal angle extended as evident tooth; position of scutellum at base of elytra normal. Body more or less "scaritoid" and pedunculate..... | |
| |MORIONINA..... | 3 |
| 2' | Anterior tibia with terminal angle not extended as evident tooth. Scutellum forward in relation to bases of elytra. Body convex, not pedunculate..... | |
| |CRATOCERINA, <i>Cratocerus</i> Dejean | |
| 3 (2) | Mentum with tooth bilobed. Length of body more than 12 mm..... | <i>Morion</i> Latreille |
| 3' | Mentum with tooth simple. Length of body less than 12 mm..... | <i>Moriosomus</i> Motschulsky |
| 4 (1') | Labium with apex of ligula extended forward, and with long setae (Fig. 4). Other | |

	mouthparts and basal antennomeres with some long and stiff setaeCHAETOGENYINA, <i>Camptotoma (sensu latiore)</i> Reiche.....	5
4'	Ligula with apex not prominently prolonged forward (Fig. 1,2,3). Antennomeres and mouthparts without supernumerary long and stiff setae	6
5 (4)	Head with single pair of supraorbital setigerous punctures. Pronotum with single pair of lateral setigerous punctures, anterior pair absent..... <i>Camptotoma (sensu stricto)</i>	
5'	Head with two pairs of supraorbital setigerous punctures. Pronotum with two pairs of lateral setigerous punctures..... <i>Camptotoma (Chaetogenys)</i> van Emden	
6 (4')	Apex of labial paraglossa with few setae (Fig. 3).....ANTARCTIINA	7
6	Apex of paraglossa without setae (Fig. 1,2).....	10
7 (6)	Penultimate labial palpomere with row of setae (more than two). Pronotum with two pairs of lateral setigerous punctures in anterior half. Anterior surface (ventral surface, in repose) of each femur with one or two rows of setigerous punctures, latter more numerous on posterior femora. Color red-brown, body very convex, short and stout, elytra only slightly longer than wide. Range - San Ambrosio Island, Chile..... <i>Kuschelinus</i> Straneo	
7'	Penultimate labial palpomere bisetose. Body more elongate, more slender, and less convex	8
8 (7')	Anterior surface of femur with row of long setae. Abdominal sterna IV-VI each with transverse row of setae..... <i>Antarctiola</i> Straneo	
8'	Anterior surface of femur with one or two setae only. Abdominal sterna IV-V each with single pair of setae, only	9
9 (8')	Penultimate tarsomere of each tarsus markedly bilobed	<i>Abropus</i> Waterhouse
9'	Penultimate tarsomere not bilobed, average for Pterostichini	<i>Metius</i> Curtis
10 (6')	Sternum VI with setigerous punctures deep and rather large, located near transverse mid-line (Fig. 6). Abdominal sterna IV-VI each distinctly and transversely bordered basally. Elytron without scutellar stria. Terminal palpomeres various	11
10'	Sternum VI with setigerous punctures normal, not foveate; OR subfoveate, but located along apical margin (Fig. 7). Scutellar stria present or absent. Terminal palpomeres subcylindrical or fusiform	PTEROSTICHINA..... 15
11 (10)	Terminal labial palpomere subcylindrical or fusiform. Elytral interval 3 with one or more discal setigerous punctures	EUCHROIINA (in part), <i>Bothynoproctus</i> Tschitscherine
11'	Terminal labial palpomere more or less triangular. Elytral interval 3 without discal setigerous punctures	12
12 (11')	Penultimate labial palpomere plurisetose (Fig. 5). Terminal maxillary and labial palpomeres dilated apically, latter with width at apex subequal to length of medial margin. Body form like that of an <i>Abax</i> adult. Dorsal surface brilliantly metallic	MICROCEPHALINA, <i>Tichonilla</i> Strand
12'	Penultimate labial palpomere bisetose	EUCHROIINA (in part)..... 13
13 (12')	Body length more than 20 mm. Head and prothorax blue green metallic, elytra coppery with pronounced metallic luster. Elytron with striae deeply impressed, intervals convex ...	<i>Lobobrachus</i> Sharp
13'	Body length less than 20 mm. Color and elytral sculpture various.....	14
14 (13')	Labial mentum with epilobe not extended to apex of lateral lobe; ligula moderately protruded beyond mental tooth; terminal labial palpomere of male markedly dilated and triangular, apical and lateral margins subequal; of female, less dilated, with medial and apical margins subequal. Elytron with striae deeply impressed, intervals convex	<i>Euchroa</i> Brullé



Figures 1 - 7. Fig. 1-4. Outline drawings of apical portion of prementum of various pterostichines. Fig. 1 and 2, paraglossae without apical setae; Fig. 3, paraglossae setose (Antarctiina); Fig. 4, ligula setose (Chaetogenyina). Fig. 5. Outline drawing of labial palpomeres 2 and 3 of *Microcephalina*. Fig. 6 and 7. Outline drawings of ventral aspect of abdominal sternum IV-VI. Fig. 6, sternum sulcate, margined along base, and with setigerous punctures of sternum VI mediad (*Euchroina*); Fig. 7, regular or average sternum for *Pterostichini*.

- 14' Mental epilobe extended to apex of lateral lobe; ligula more elongate, markedly projected beyond apex of mental tooth; terminal labial palpomere less dilated apically (in male, apical margin much shorter than medial margin; in female, still less dilated). Elytron with striae less deeply impressed, intervals only slightly convex. Range - mountains of central Mexico, and island of Hispaniola..... *Dyschromus* Chaudoir
- 15 (10') Antenna short, antennomeres 4-10 each slightly wider than long. Abdominal sterna IV-VI each sulcate along base, or with vestigial sulcus each side, only.....
..... *Cephalostichus* Straneo
- 15' Antenna average, elongate, antennomeres 4-10 distinctly longer than wide. Abdominal sterna sulcate or not..... 16
- 16 (15') Sterna IV-VI each entirely transversely sulcate and margined basally..... 17
- 16' Sterna IV-VI not entirely sulcate and not bordered along basal margin, with or without short sulcus each side..... 29
- 17 (16) Elytron with only five deeply impressed striae; intervals markedly convex, catenate.....
..... *Oribazus* Chaudoir
- 17' Elytron normally striate; intervals uninterrupted throughout length of disc 18
- 18 (17') Elytron with interval 3 impunctate 19
- 18' Elytral interval 3 with one, two, or three setigerous punctures 22
- 19 (18) Alternate intervals of elytron with irregular impressions. Pronotum with single postero-lateral impression each side..... *Apsaustodon* Tschitscherine
- 19' Intervals of elytron smooth, without irregular impressions 20
- 20 (19') Dorsal surface of elytra with blue-violaceous metallic luster. Pronotum with two postero-lateral impressions each side. Body length more than 10 mm. Setigerous punctures of abdominal sternum VI slightly larger than usual..... *Haplobothynus* Tschitscherine
- 20' Elytra with dorsal surface black, without metallic luster 21
- 21 (20') Larger, body length 14-15 mm. Body slender, slightly convex. Dorsal surface of elytra black, glossy, but not iridescent (Middle American specimens of this genus have the elytra distinctly iridescent [geb])..... *Ophryogaster* Chaudoir
- 21' Smaller, body length about 8.5 mm. Elytra markedly convex, dorsal surface slightly iridescent..... *Hybotheucus* Chaudoir
- 22 (18) Tarsal claws pectinate *Abaridius* Chaudoir
- 22' Tarsal claws smooth, not pectinate 23
- 23 (22') Elytron with interval 3 impunctate *Pseudabarys* Chaudoir
- 23' Elytron with interval 3 at least bipunctate..... 24
- 24 (23') Transverse sulcus of each abdominal sternum with large and deep punctures
..... *Sierrobius (sensu latiore)* Straneo 25
- 24' Transverse sulci of abdominal sterna impunctate..... 26
- 25 (24) Body slender, Apical blade of median lobe of most males asymmetric, right side more developed than left..... *Sierrobius (sensu stricto)*
- 25' Body stouter. Median lobe either symmetrical, or left side slightly more developed than right *Sierrobius (Pachyabaris)* Straneo
- 26 (24) Elytron with scutellar stria more or less developed. (Body form like that of *Poecilus cupreus*, or *Poecilus lucublandus*)..... *Pachytheucus* Chaudoir
- 26' Elytron without scutellar stria 27

- 27 (26') Terminal labial palpomere of male triangular, medial margin twice length of apical margin..... *Meropalpus* Tschitscherine
- 27' Terminal labial palpomere subcylindrical or fusiform 28
- 28 (27') Abdominal sterna with setigerous punctures slightly larger and deeper than usual. Smaller (body length 9–10 mm) *Eumara* Tschitscherine
- 28' Abdominal sterna with setigerous punctures of average size. Larger, or same size as above *Marsyas* Putzeys
- 29 (16') Tarsal claws pectinate. Head wide; eyes large hemispherical. Body length 4–6 mm. Elytral interval 3 with single setigerous puncture. Abdominal sterna IV–VI without transverse sulci laterally *Abaris* Dejean
- 29' Tarsal claws smooth, not pectinate. Length more than 6 mm; or eyes small to average in size 30
- 30 (29') Sterna IV–VI each with transverse sulcus widely interrupted medially (complete in few specimens of *Blennidus fontainei* Tschitscherine) 31
- 30' Sterna IV–VI without partial transverse sulcus and border; with or without irregular longitudinal impressions laterally 34
- 31 (30) Labrum metallic *Cynthidia* Chaudoir
- 31' Labrum not metallic 32
- 32 (31') Partial sulci of sterna IV–VI each with row of rather wide and deep punctures. Metepisternum of thorax short or moderately elongate *Ogmopleura* Tschitscherine
- 32' Partial sulci of sterna IV–VI smooth, without row of wide and deep punctures. Metepisternum elongate, with lateral side 1.5 times longer than anterior width *Blennidus (sensu latiore)* Motschulsky 33
- 33 (32') Dorsal surface of body coppery, shiny (similar to *Poecilus cupreus*; rather flattened) *Blennidus (Pseudocynthidia)* Straneo
- 33' Dorsal surface of body black; more convex *Blennidus (sensu stricto)*
- 34 (30') Elytral interval 3 impunctate *Feroniola* Tschitscherine
- 34' Elytral interval 3 with at least one setigerous puncture 35
- 35 (34') Elytral intervals 5 and 7 with some setigerous punctures *Metoncidus* Bates
- 35' Elytral intervals 5 and 7 impunctate 36
- 36 (35') Elytral interval 3 with two or more setigerous punctures 37
- 36' Elytral interval 3 with single setigerous puncture 46
- 37 (36) Intercoxal process of prosternum with two setigerous punctures near apex *Parhypates (Argutoridius)* Chaudoir
- 37' Intercoxal process glabrous, without setigerous punctures 38
- 38 (37') Metepisternum short, anterior and lateral margins subequal *Parhypates (sensu latiore)* Motschulsky 39
- 38' Metepisternum elongate, lateral margin longer than width at anterior margin *Trirammatus (sensu latiore)* Chaudoir 43
- 39 (38) Small, body length 7–9 mm. Form stout. Pronotum convex, only slightly narrowed basally. Range - high altitudes in Andes of Ecuador *Parhypates (Agraphoderes)* Bates
- 39' Size generally larger. Form slender. Pronotum only slightly convex, or slightly flattened, generally evidently narrowed toward base 40
- 40 (39') Head with two pairs of supraorbital setigerous punctures 41
- 40' Head with one or three pairs of supraorbital setigerous punctures 42
- 41 (40) Lateral margins of lateral lobes of mentum smooth, not crenulate. Frons with

- impressions. Elytron with basal ridge complete. At least hind tarsomere 1 sulcate laterally. Mandibles shorter *Parhypates (sensu stricto)*
- 41' Mentum with lateral margins of lateral lobes crenulate. Frontal impressions indistinct or nearly so. Elytron with basal ridge complete or rudimentary. Mandibles longer
..... *Parhypates (Eutanys)* Tschitscherine
- 42 (40') Head with single pair of supraorbital setigerous punctures.....
..... *Parhypates (Antarctobium)* Tschitscherine
- 42' Head with at least three pairs of supraorbital setigerous punctures
..... *Parhypates (Chaetuchenium)* Tschitscherine
- 43 (38') Elytron without scutellar stria..... *Trirammatius (sensu stricto)*
- 43' Elytron with scutellar stria 44
- 44 (43') Mentum with tooth bilobed. Pronotum with complete anterior submarginal sulcus
..... *Trirammatius (Meraulax)* Tschitscherine
- 45 (44') Prosternum with intercoxal process smooth, not margined apically. Pronotum not obliquely depressed near postero-lateral angles
..... *Trirammatius (Feroniomorpha)* Tschitscherine
- 45' Intercostal process of prosternum with apex margined. Pronotum obliquely depressed near postero-lateral angles *Trirammatius (Plagioplatys)* Tschitscherine
- 46 (36') Metepimeron with posterior margin obliquely truncate. Metepisternum with lateral margin only slightly longer than width at anterior margin. Posterior tarsomeres longitudinally deeply sulcate on outer and inner sides; anterior tarsomeres of male slightly dilated obliquely, ventral adhesive vestiture confined to inner (medial) half of tarsomeres 1-3. Pronotum with anterior marginal sulcus complete and deep *Adrimus* Bates
- 46' Metepimeron regular in form, posterior margin rounded..... 47
- 47 (46') Metepisternum short, width at base and length of lateral margin subequal. Anterior tarsomeres of male normally, symmetrically dilated *Parhypates (Paranortes)*
- 47' Metepisternum elongate (specimens of most taxa), or short. Male with anterior tarsomeres obliquely dilated..... 48
- 48 (47') Pronotum with more than two pairs of lateral setigerous punctures; not pedunculate
..... *Oxycrepis (sensu stricto)* Reiche
- 48' Pronotum with one or two pairs of lateral setigerous punctures; pedunculate or not..... 49
- 49 (48') Pronotum not pedunculate *Loxandrus* LeConte
- 49' Pronotum pedunculate 50
- 50 (49') Pronotum as wide as long; lateral margin evidently angulate at level of anterior setigerous puncture. Elytral striae shallow, very slightly punctulate; intervals flat, interval 3 with series of nine setigerous punctures near stria 2 *Oxycrepis (Prostolonis)* Mateu
- 50' Pronotum more narrowed anteriorly, wider than long; lateral margin rounded or only slightly angulate at level of anterior setigerous puncture. Elytral striae deeper and markedly punctulate; intervals more or less convex, interval 3 with single setigerous puncture..... *Oxycrepis (Stolonis)* Motschulsky

CHECKLIST OF SOUTH AMERICAN PTEROSTICHINI: SUBTRIBES, GENERA, AND
SUBGENERA

Subtribe MORIONINA

1. *Morion* Latreille, 1810
2. *Moriosomus* Motschulsky, 1864

Subtribe CRATOCERINA

3. *Cratocerus* Dejean, 1829

Subtribe MICROCEPHALINA

4. *Tichonilla* Strand, 1942

Subtribe EUCHROINA

5. *Lobobrachus* Sharp, 1885
6. *Euchroa* Brullé, 1834
(*Dyschromus* Chaudoir, 1835)
7. *Bothynoproctus* Tschitscherine, 1900

Subtribe PTEROSTICHINA

8. *Oribazus* Chaudoir, 1874
9. *Apsaustodon* Tschitscherine, 1901
10. *Haplobothynus* Tschitscherine, 1901
11. *Ophryogaster* Chaudoir, 1878
12. *Hybothecus* Chaudoir, 1874
13. *Sierrobium* (*sensu latiore*) Straneo, 1951
 - 13.1 *Sierrobium* (*sensu stricto*)
 - 13.2 *Pachyabaris* Straneo, 1951
14. *Pachytheclus* Chaudoir, 1874
15. *Meropalpus* Tschitscherine, 1900
16. *Marsyas* Putzeys, 1846
17. *Eumara* Tschitscherine, 1901
18. *Pseudabarys* Chaudoir 1873
19. *Abaridius* Chaudoir 1873
20. *Abaris* Dejean, 1831
21. *Cynthidia* Chaudoir, 1873

22. *Blennidus (sensu latiore)* Motschulsky, 1865
 - 22.1 *Blennidus (sensu stricto)*
 - 22.2 *Pseudocynthidia* Straneo, 1953
23. *Ogmopleura* Tschitscherine, 1898
24. *Trirammatus (sensu latiore)* Chaudoir, 1838
 - 24.1 *Trirammatus (sensu stricto)*
 - 24.2 *Plagioplatys* Tschitscherine, 1900
 - 24.3 *Meraulax* Tschitscherine, 1900
 - 24.4 *Feroniomorpha* Solier, 1849
25. *Parhypates (sensu latiore)* Motschulsky 1865
 - 25.1 *Parhypates (sensu stricto)*
 - 25.2 *Agraphoderes* Bates, 1891
 - 25.3 *Eutanys* Tschitscherine, 1900
 - 25.4 *Anarctobium* Tschitscherine, 1900
 - 25.5 *Chaetauchenium* Tschitscherine, 1900
 - 25.6 *Paranortes* Tschitscherine, 1900
 - 25.7 *Argutoridius* Chaudoir, 1876
26. *Loxandrus* LeConte, 1852
27. *Oxycrepis (sensu latiore)* Reiche, 1843
 - 27.1 *Oxycrepis (sensu stricto)*
 - 27.2 *Prostolonis* Mateu, 1976
 - 27.3 *Stolonis* Motschulsky, 1865
28. *Adrimus* Bates, 1872
29. *Metoncidus* Bates, 1870
30. *Feroniola* Tschitscherine, 1900
31. *Cephalostichus* Straneo, 1977

Subtribe ANARCTIINA

32. *Kuschelinus* Straneo, 1963
33. *Metius* Curtis 1839
34. *Abropus* Waterhouse, 1842
35. *Antarctiola* Straneo 1951

Subtribe CHAETOGENYINA

36. *Camptotoma (sensu latiore)* Reiche, 1843
 - 36.1 *Camptotoma (sensu stricto)*
 - 36.2 *Chaetogenys* van Emden, 1958

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